



A
HANDBOOK
OF

SEABOARD DOUGLAS FIR
PLYWOOD

SEABOARD LUMBER SALES COMPANY LIMITED
SEABOARD HOUSE, VANCOUVER 1, CANADA

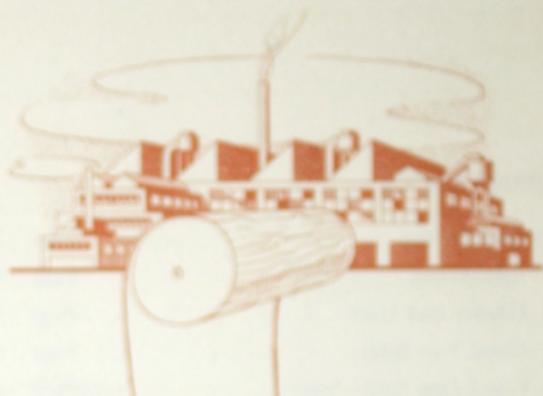
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This publication is designed for your convenience to bring you useful information concerning the various grades and types of Seaboard Douglas Fir plywood.

No attempt has been made to present technical information in exhaustive detail. Further information or advice can be obtained by contacting Seaboard Representatives (see inside back cover), or by writing directly to Seaboard Lumber Sales Company Limited, Seaboard House, 999 West Hastings St., Vancouver 1, Canada.

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This is your introduction to Canadian Douglas Fir Plywood—a wood product which combines all of wood's desirable qualities into a light, convenient panel, strong for its weight, possessing an absolutely waterproof glue-line as well as additional features of appearance, and dimensional stability that cannot be equalled by wood in its natural state.

This remarkable combination of qualities is made possible by the construction of the panels, consisting of at least three laminations of rotary-cut veneer sheets bonded together with phenolic resin glues under controlled conditions of heat and pressure. Because the grain directions of adjacent veneers in every panel are at right angles to one another, longitudinal shrinkage and shrinkage across the grain hold one another in check, resulting in a dimensional stability and strength considerably greater than the wood from which the panel is made.

The waterproof glue-line of Canadian Douglas Fir plywood is the result of intensive research over a period of years. British Columbia's first plywoods were bonded by a cold-press employing moisture resistant glues. Research introduced the hot-pressed phenolic resin glue process making possible a completely waterproof bonded exterior type plywood (see Page 31 for standard waterproof tests) which is now the only

type produced by members of the Plywood Manufacturers' Association, in which Seaboard Lumber Sales' mills are participants. In other words, today's builder can use Douglas Fir plywood with complete confidence in its waterproof characteristics. The branded imprints PMBC Exterior Waterproof Glue and PMBC Exterior Sheathing Waterproof Glue on the edges of standard-size panels indicate that the panels comply with the requirements for waterproof qualities as laid down by the Canadian Standards Association in its "Specifications for Douglas Fir Plywood" C.S.A. 0121.

The purpose of this publication is to acquaint you with the various grades and types of Douglas Fir plywood, and to indicate some of the thousands of uses this modern building material has found in all parts of the world. The easily-manageable panels in convenient, standard sizes appeal to the practical imagination of master builders and amateurs alike, and as a result Douglas Fir plywood has found unprecedented use, particularly in North America where it received its early promotion. The Douglas Fir plywood depicted in the following pages was produced in Seaboard member plywood factories which are among the most modern and productive of their kind in the world.



ADVANTAGES

If the builder wishes to reduce application time and related costs he cannot afford to ignore the distinct advantages of Douglas Fir plywood over traditional wood products.

STRENGTH

A $1\frac{1}{4}$ " Douglas Fir panel nailed to a frame has twice the relative rigidity of $1'' \times 8''$ boards applied diagonally, almost three times the relative strength, and a high resistance to impact.

EASE OF APPLICATION

Each standard size panel of plywood covers thirty-two square feet, and is so light that it can be fitted into position by one man. Fewer and shorter nails are required to fasten Douglas Fir plywood panels.

INSULATION

A room with an exterior sheathing of fir plywood and an interior finish of fir plywood requires considerably less heat to maintain a constant temperature than does a conventional room of boards and plaster.

NAILING

Plywood's cross-laminations hold nails securely, and nails can be driven close to edges without fear of splitting.

GENUINE

Plywood is genuine wood; it looks and feels like wood; it can be worked easily by the professional or by the handyman, employing standard wood tools.

BEAUTY

Varnished, stained or painted Douglas Fir plywood presents surfaces of distinctive beauty.

IMMEDIATE USE

Dry-built structures (plywood panelling applied directly to studs) can be erected rapidly, and are ready for use immediately upon completion.

MAINTENANCE

Because plywood surfaces are permanent and crack-proof they require the minimum of attention.

GRADES AND USES

Any attempt to list the many and varied uses for Canadian Douglas Fir plywood would be fruitless. The builders' imagination and ingenuity reveal new applications every day. Each country has its peculiar building problems and needs, and the suggested uses and pictured applications on ensuing pages are merely starting points for your own thinking. It is probable that you will want to change or modify to suit your own requirements, but whatever your building project is, fir plywood can save you time and money while providing structural advantages.

F FARMS

Giant sheets of Douglas Fir plywood are strong, permanent, and convenient. Some major uses include: homes, implement shelters, grain bins, chicken houses, brooders, milk and hog houses, dairy and tobacco barns, feed troughs, grain elevators, hay shelters. Most of these can be built with ordinary woodworking tools and without professional assistance.

INDUSTRIAL

Fir plywood's high strength-to-weight ratio is an advantage for pallets, bins, cupboards, shelves, partitions, racks, crates, fuel hoppers, vats, ammunition cases, cable reels, wagons, van linings, movable assemblies, concrete shuttering, etc.

DWELLINGS

Interior paneling, sub-flooring, kitchen built-ins, furniture, concrete shuttering, underlay for linoleum, tile and carpeting are just a few of the suggested uses for Douglas Fir plywood in dwellings.

FURNITURE

Warp-resistant, split-proof, and wide in area fir plywood is ideal for: tables, bookcases, chairs, cupboards, valances, cabinets, children's furniture and toys.

MARINE

Fir plywood with its positive waterproof glue-line, great strength, and long lengths is ideally suitable for: boats of all types up to fish seiner size; for repair plates, decks, cabins, bulkheads, hull planking, built-ins.

DO-IT-YOURSELF

The tendency for amateur craftsmen to do their own construction and effect their own repairs is sweeping the country. Plywood simplifies the home craftsman's work tremendously. Many Do-It-Yourself plans to assist the home craftsman are produced by Seaboard mills and by the Plywood Manufacturers' Association.

Each grade has its own particular list of uses. From concrete shuttering to beautifully finished interiors there is a grade of Canadian Douglas Fir plywood for the task.

GOOD TWO SIDES (G2S)

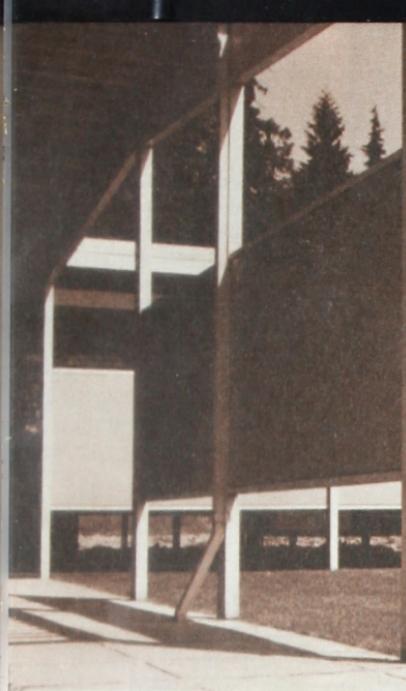
Each face of Good Two Sides (G2S) is smooth and sound, free from knots or open defects (permitting neatly-made patches and shims), and suitable for the highest grade paint. This grade is excellent for any purpose where appearance is the prime consideration and both sides of the panel will be exposed to view. Furniture, booth partitions, sliding doors and panels, cupboard doors are but a few of the suggested uses. Standard panel width is 48 inches. Standard length is 96 inches; lengths up to 120 inches are also available and extra long, scarf-jointed panels up to forty feet can be supplied in thicknesses from $\frac{1}{4}$ " to $\frac{3}{8}$ ". As with all other grades offered by Seaboard Lumber Sales Company Limited the glueline is phenolic resin glue heat-bonded.



Good Two Side
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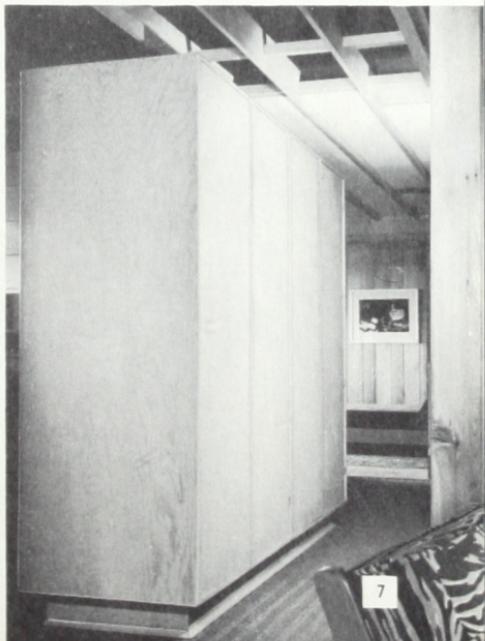


The walk screens in this modern grade school show attractive faces on both sides.



Good Two Sides offers a high quality surface on both sides. This room owes much of its charm and warmth to the clear, grainpatterned surfaces of its Douglas Fir plywood cabinets and cupboards.

For these large wardrobe closets, serving double duty as wall partitions, Good Two Sides was a wise choice.



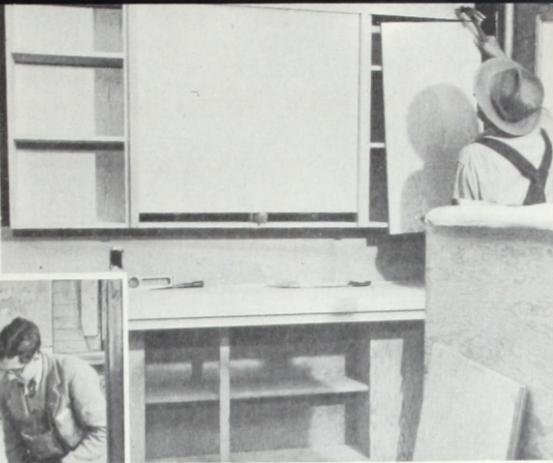
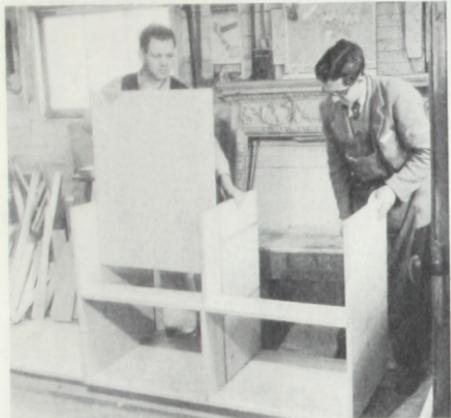
GOOD ONE SIDE SOLID BACK (G/SOLID)

The face is smooth and sound, and free from knots and defects (allowing neat patches and shims). The back is paintable and presents a firm, solid surface with neatly made patches, synthetic plugs, and small, tight knots which may be completely concealed under a normal paint covering. G/SOLID is used wherever quality and appearance is important on one surface only, with a relatively good appearing surface on the other. This grade is useful for cupboard doors, furniture, etc. Sizes and thicknesses are the same as Good Two Sides. Glueline, phenolic resin-bonded.



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Carpenters choose G/Solid for kitchen cabinet work. Solid paint finishes are best for this grade.

Where top quality appearance is essential on one side, and good appearance on the other Good One Side Solid is the answer. This two-way storage cabinet bookcase employs G/Solid to advantage.

G/Solid is an excellent choice for quality fixtures and shelving.



GOOD ONE SIDE (G1S)



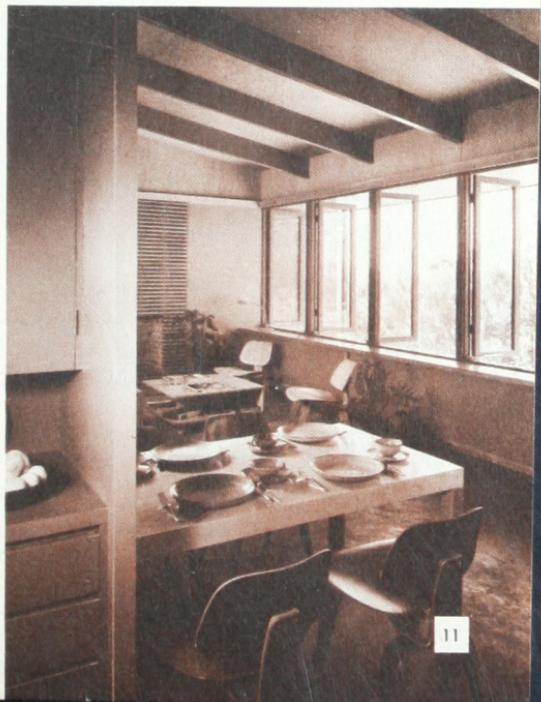
The face is smooth and sound, free from knots or defects (allowing neat patches and shims). The back may contain limited sized knots, knotholes and other defects which do not materially affect the strength or serviceability of the panel. Once again appearance is the governing factor. G1S is the answer if only one side of the panel will be exposed. It is recommended for wall panelling, furniture, etc., and of course possesses a phenolic resin-bonded waterproof glue line. Dimensions and thicknesses as in preceding grades.

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The craftsman takes special care with this plywood wall. It will receive an opaque or a rub-down finish.



Ceiling and wall panelling in this room are of Good One Side Plywood. Cabinet doors on the left are of Solid One Side.

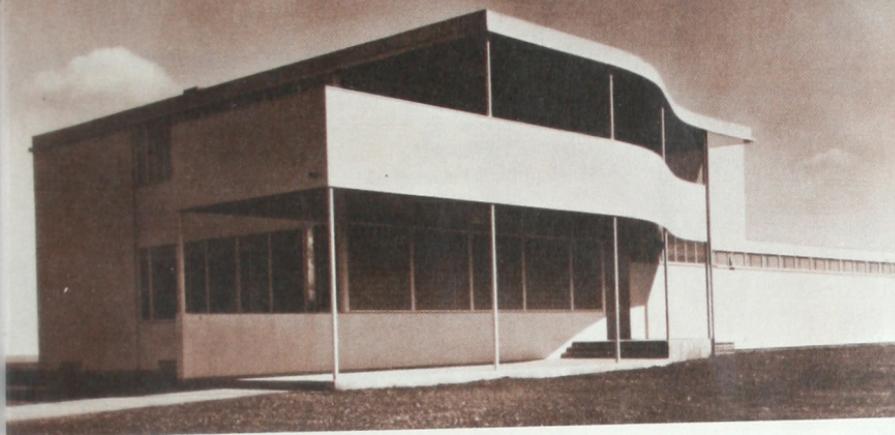


SOLID TWO SIDES (SOLID 2S)



Each face is solid with neatly-made patches, synthetic plugs and small, sound, tight knots. Both faces are similar to the back face of G/SOLID. The uses are very similar to those of G2S except that appearance requirements are not so exacting. This grade is ideal for concrete forms. High moisture conditions do not affect the phenolic resin-bonded glueline. Dimensions and thicknesses as in preceding grades.

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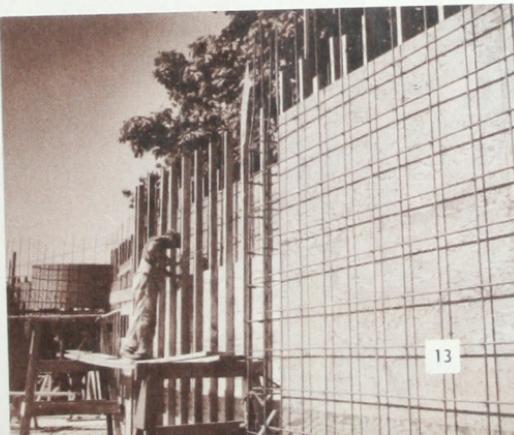


This frame structure made extensive use of Solid Two Sides with an attractive paint finish.



Solid Two Sides has proven highly satisfactory as siding for lorries and other conveyances. It stands up to the battering of heavy, shifting loads.

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Solid Two Sides extends the life of the plywood panel as a form-cladding material. Each panel has two smooth concrete pouring surfaces. Seaboard mills will oil these surfaces for a small additional cost.



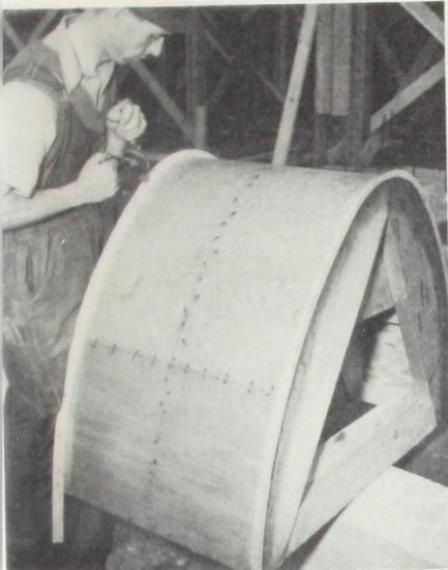
SOLID ONE SIDE (SOLID 1S)

The face is solid with neatly-made patches, synthetic plugs and small, sound knots. However, the back may contain limited sized knot holes and other defects which do not affect serviceability. SOLID 1S corresponds in use to GIS except that finishing requirements are not so rigid. An opaque paint yields the best finish, and this grade is excellently adapted to concrete form work, floor underlay for linoleum, asphalt tile, etc., where the underlying surface must be smooth and uniform. Glueline is phenolic resin-bonded. Dimensions and thicknesses as in preceding grades.



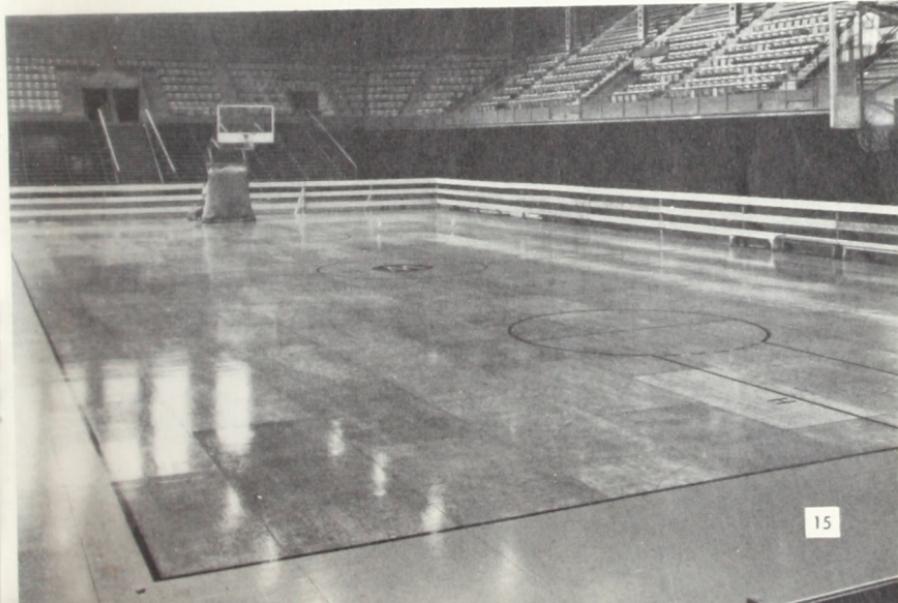
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An excellent grade for shattering and concrete
design where smooth surfaces are essential.
Notice the extreme degree of curve.

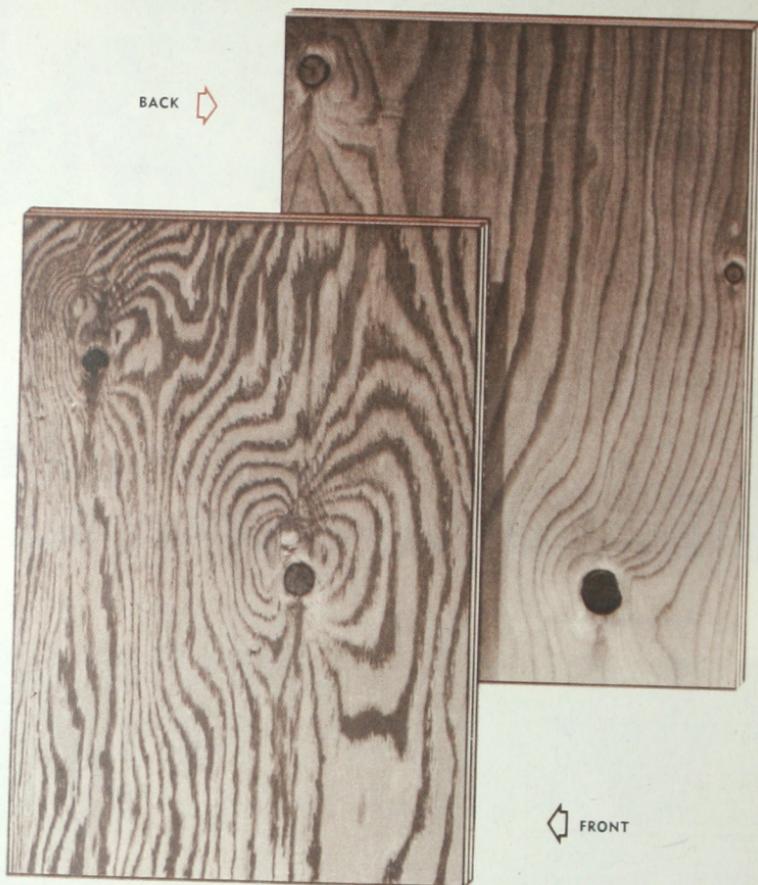


The workman lifts these panels in place with
ease. A paint application will result in a
wall of outstanding beauty—hard-wearing, too.

A portable basketball floor made up of Douglas Fir plywood sections. It can be assembled on an
armoury floor in a few hours, and removed just as quickly.



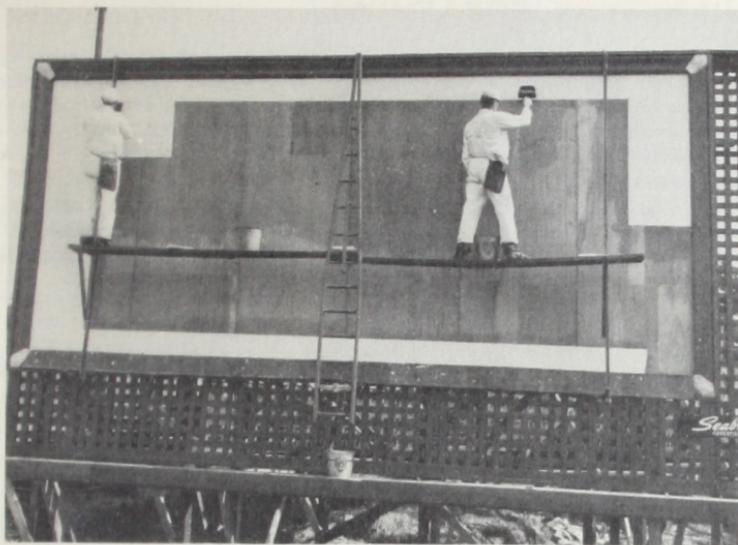
UNSANDED SHEATHING



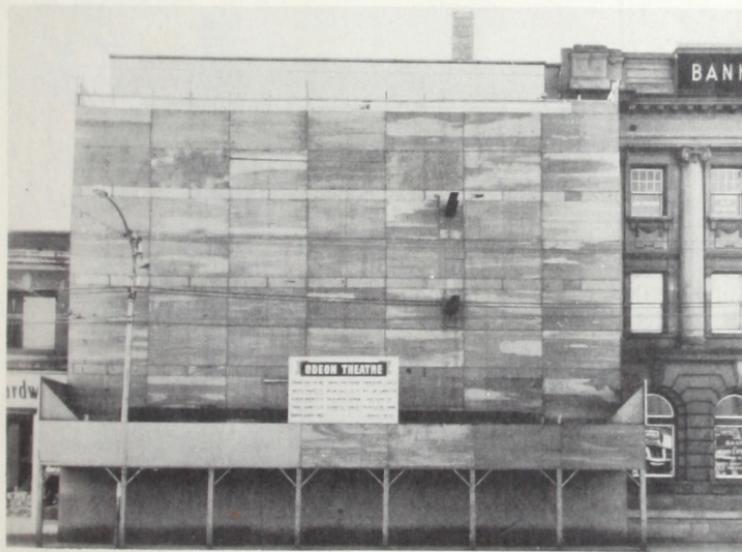
Fast becoming the utility material in plywood construction this grade permits open defects of a limited size on both faces as long as they do not affect the strength or serviceability of the panel. It is highly satisfactory for subflooring and all other similar structural application. In addition it finds wide use for fencing, hoardings, and all structural uses where strength, utility and economy are more important than a quality finish. Farm and industry use Unsanded Sheathing in large volume. Sizes are as in preceding grades, but Unsanded Sheathing is produced only in thicknesses of $\frac{5}{8}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ ".

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Strong, durable hoardings are quickly erected with Unsanded Sheathing.



This shell of unsanded sheathing permitted workmen to erect a building in sub-zero weather. Warm air was circulated through the working space. Clear plastic strips allowed the entry of daylight.

UNDERLAY SHEATHING

The development of Underlay Sheathing has arisen out of the rapidly increasing recognition of plywood as an economical, easily-applied and highly-suitable material for sub-flooring where linoleum, asphalt tile, or other relatively soft floor coverings are to be used. Underlay sheathing grade offers a smooth, firm surface free of major defects that could result in a depression or fracture of the final floor covering.

The unsanded facing surface contains plugs and synthetic patches, sound and tight knots and reasonably rough grain. Open defects and splits do not exceed $\frac{3}{8}$ ". The back conforms to the standard back of exterior sheathing. All panels are phenolic resin glue-bonded.

BACK



FRONT



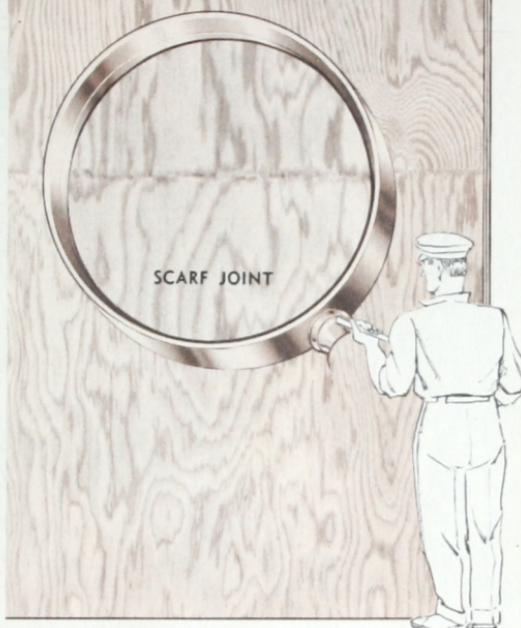
An excellent sub-flooring material. Here a workman spreads adhesive over a plywood subfloor with a minimum of joins. Final surface will be linoleum.

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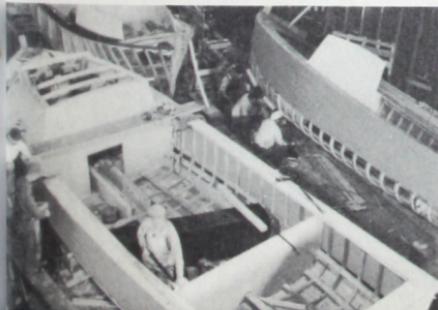
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SELECT MARINE

This grade has been especially developed for the use of boat builders and is intended for hull planking and all other marine uses. Shipwrights use Select Marine Grade with confidence on craft of any size. Both faces are smooth and sound, and free from knots or defects. All interior plies are solid with neatly made patches and small, sound knots. The use of a scarf-jointing process makes possible the manufacture of Marine Grade plywood panels in any practical length, and the scarf joint, melamine glued, is as strong, or stronger than the surrounding wood.



SCARF JOINT



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mum of joins.



Ranch Wall



A happy combination of the traditional and the modern, Ranch Wall offers the rustic charm of rugged, vertical planking reminiscent of the ranch buildings of the Canadian West.

The 8' x 4' panels are $\frac{3}{8}$ " thick and grooved to give the effect of vertically applied planks. The surface is rugged and unsanded and a prime base of Redwood stain sprayed on at the factory is an excellent foundation for the recommended finish of two coats of exterior stain.

Ranch Wall can be used outside as a siding material, fencing, and patio or breeze-way perimeters. Indoors it is ideal for use in recreation rooms, dens and hallways. Commercially it can be used to good effect in cocktail lounges, reception offices, stores, hotels, and display rooms.

Architects and builders can obtain thicker panels in modified widths and lengths for large scale projects. Such orders are subject to special manufacture, but substantial savings can be realized on such projects as housing developments. As with all other Seaboard plywood products, Ranch Wall is phenolic resin glue-bonded.

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ARTPLY AND SCORE-PLY

These panels come in four different and attractive designs. Basically the pattern consists of beads cut at either regular or random intervals on the face of a selected grade of Douglas Fir plywood free of joints and patches (or with some joints and patches if an opaque paint finish is planned). Whether you are thinking of a new house, or are arranging to remodel old rooms Artply and Scoreply will bring new spirit in building, and new warmth and charm to your dwelling. It can be applied with the design running either vertically or horizontally and lends itself to dozens of colour treatments. Full panels are 96 inches long and 48 inches wide.



WELDTEX

Weldtex Striated plywood is selected Douglas Fir plywood with the surface cut in a series of parallel striations. These are cut to different widths and depths, forming a pattern that is interestingly varied, changing with the play of light across its surface. Joints are completely invisible. The pattern of one panel blends perfectly with that of the next. Weldtex panels are $\frac{3}{8}$ " thick, and are a standard size of 96 inches long by 48 inches wide. They take beautiful paint and stain finishes. As with all plywoods sold under the Seaboard brand Weldtex is phenolic resin glue-bonded and can be used for exteriors or interiors.



ETC

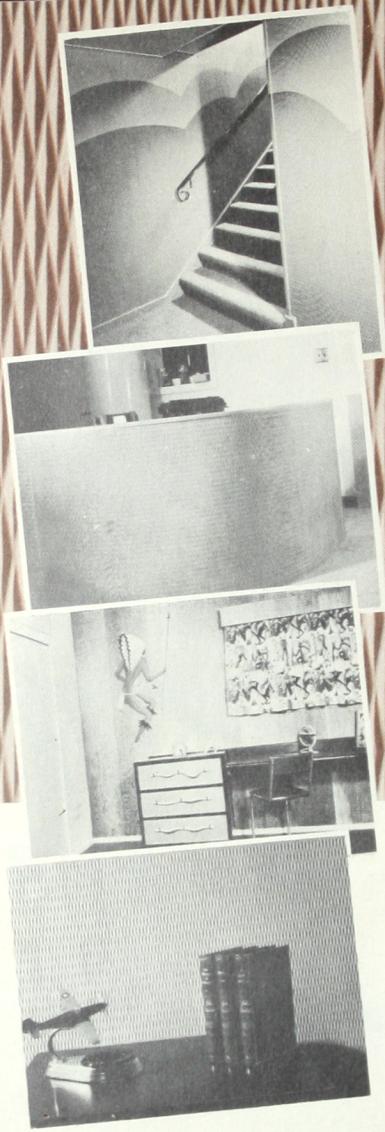
Etch Wood plywood with its surface individual as a pattern of it reflects the changing light. Etch Wood for exterior with other Se a variety of durable surface and-sized pan

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ETCH Wood

Etch Wood is highly select Douglas Fir plywood with the softwood burnished from its surface. Each panel is as individual as a thumbprint. The original pattern of its graining, raised in relief, reflects the play of light and shadow—changing always with the angle of vision. Etch Wood is an ideal decorative panel for exterior or interior use. In common with other Seaboard plywoods it will not split, warp, or buckle, and can be given a variety of striking paint and stain finishes. Unique, too, is Etch Wood's hard, durable surface combining exceptional beauty with long-wearing qualities. Standard-sized panels are 96 inches by 48 inches and are $\frac{3}{8}$ inches thick.



Shadow Wood

Shadow Wood is another of a striking collection of "three dimensional" decorative plywoods manufactured by Seaboard member mills. Highly selected Douglas Fir plywood panels are subjected to an embossing process under heat and pressure resulting in an attractive recessed diamond

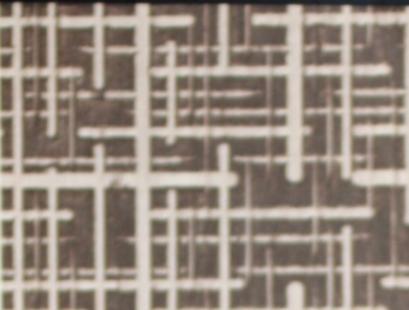
design. Applied to walls, ceilings, or furniture, Shadow Wood breaks up reflected light into a regular pattern of light and shadow that changes with the angle of vision. A waterproof plywood so rigid that it can be nailed to studs without backing, Shadow Wood is a rich but inexpensive panel for use in any room. Standard-sized panels are 96 inches by 48 inches and $\frac{1}{4}$ inch thick.

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SHAN-TONG

Shan-tong is a $\frac{3}{4}$ -inch Douglas Fir plywood panel with an embossed over-all pattern that closely resembles the design woven into expensive Oriental fabrics. The appearance is two-toned with a cream-coloured slightly raised design in quiet contrast to the dark brown background. The surface is remarkably resistant to scratches and abrasions, and is ideally suited to use as an all-round panelling in living rooms, dining rooms, dens, etc., and for counters, furniture, lobbies, public lounges and any other location where richness and quality are a requisite. Standard size panels are 96 inches long and 48 inches wide.

PLYWOOD ON THE FARM

Perhaps the farmer has most reason to look on Canadian Douglas Fir plywood with favour. The farmer must rely on his own labour resources and ingenuity to erect and maintain the many types of buildings and shelters on his land. He needs a utility material that can be used for a wide variety of purposes. He requires that it be strong and durable, inexpensive and easy to apply. Douglas Fir plywood meets these requirements admirably. It can be cut with ordinary tools, nailed, screwed or glued. Standard panels cover 32 square feet at a time. Plywood with its close-fitting joints, natural insulation properties, and waterproof-phenolic resin glueline should be one of the farmer's closest construction friends.



PORTABLE REARING HOUSE

Light, strong rearing houses of Douglas Fir plywood can be moved readily from place to place.

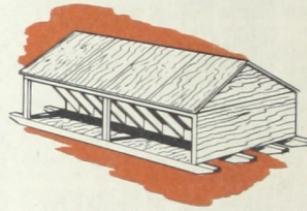
PORTABLE HOG FEEDER

Holds ample feed and can take care of a dozen hogs at one time. Rugged and easy to construct this is an easy project for unskilled labor.



PORTABLE GRAIN BIN

Grain bins of any shape and size are possible with plywood panels.



OPEN SILO

Waterproof panels of Douglas Fir plywood are ideal for open silos. Easy to erect and move, they save time and money for the farmer.



A variety of plans are available on request.

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HOUSE

Douglas Fir
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Unsound sheathing was used ex-
clusively on this grain storage shed.

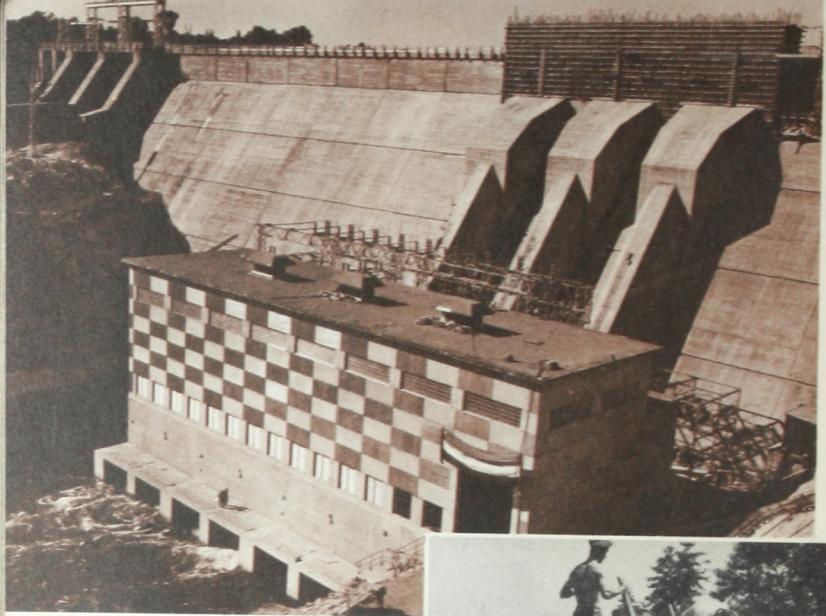


A stock barn with roof entirely of
unsound sheathing.

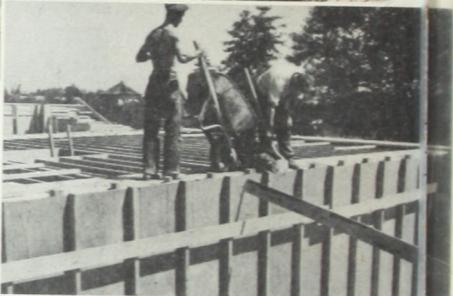


A cross-tied pole frame constructed
here as implement shed, using
unsound sheathing grade Douglas
fir plywood, eliminates expensive
concrete foundations and reduces
lumber requirements by two-thirds.





Dam and powerhouse, Eastern Canada.



Easily erected, easily stripped down, Douglas fir plywood is an ideal concrete form material.

CONCRETE FORMS

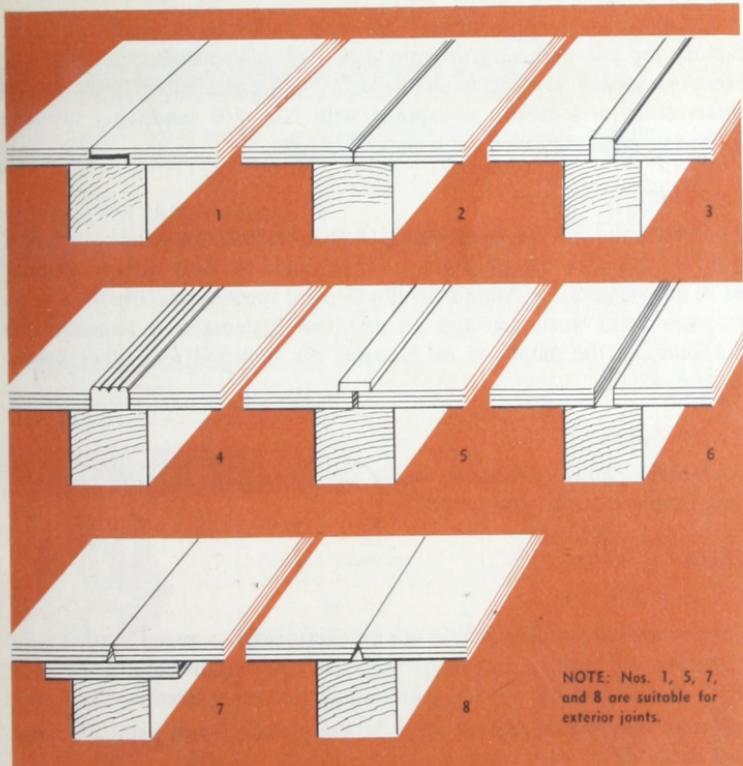
A most interesting advance in recent years in concrete shutting construction is the wide acceptance of waterproof-glued Canadian Douglas Fir plywood panels for shutting. Some of the reasons for this include the uniform and equalized strength of the cross-laminated construction; flexibility permitting smooth, simple curves; each panel covers 32 square feet of forms, thus fewer joins and less finishing required; fir plywood is splitproof, shatterproof, warp-resistant, and waterproof (phenolic resin glue-bonded), which means that forms can be re-used many times. When no longer considered suitable for shutting these panels may still be employed in a variety of ways; such as for sub-flooring, protective fencing, barrow runways and other uses. Both sanded and unsanded grades of plywood are available. Sanded faces yield a smooth, finished concrete surface, while bas relief and intaglio effect can be obtained in great variety with such specialty plywood as Shadow Wood, Etch Wood or Weldtex.

The British Columbia Plywood Manufacturers' Association has issued a technical handbook on concrete shutting which is available on request.

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JOINTS

A number of suggested joint treatments are indicated below. The simplest and most popular is the plain butt joint in which both edges have been back-bevelled with a plane before erection. This treatment combined with some of the specially-surfaced panels such as Weldtex, Shan-tong, or Etchwood, can produce completely concealed joints, making them veed, or with inset mouldings, wood mouldings, or ornamental metal strips. A basic rule is to begin panel placement at an opening and have all other vertical joints occur at openings. With the use of mouldings or veed joints, plank areas may be arranged in any desired pattern. If an opening is over four feet, place the plywood horizontally, even though the other panels may be vertical.



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FINISHES

INTERIOR

To retain the natural figuring on faces of suitable Douglas Fir plywood panels, simple yet attractive finishes have been developed. An inexpensive finish of this type can be obtained as follows:

1. Brush on one coat white pigmented resin sealer and before dry, wipe with cloth to desired grain show-through. Keep working area small enough so that it can be wiped down before drying. When dry, sand lightly with No. 1/2 sandpaper.
2. Apply one coat white undercoat pigmented to required colour and wipe down as before for desired shade. Sand lightly when dry as in Step 1 above.
3. Apply one coat flat varnish for durable wearing surface.

Usual types of good interior flat wall paints or enamels are satisfactory for plywood, and priming with a clear synthetic resin sealer is recommended. Sanding with No. 1/2 sandpaper before applying the undercoater and careful re-sanding with No. 1/0 sandpaper between following coats achieves satin-smooth results.

EXTERIOR

The best paint job for wood siding is also the best for exterior applications of Douglas Fir plywood. Three coats of high quality exterior paint are suggested. Aluminum house paint made especially for use on exterior wood work provides an excellent firstcoat that improves the durability of the paint job on Douglas Fir plywood and other broad-grained wood.

CAUTION

Aluminum paints or enamels made for other purposes are unsuitable for priming exterior wood work.

NOTE:

EDGE FINISHING

Careful sealing of edges should not be overlooked to guard against paint blistering and peeling caused by moisture creeping in behind the paint film. To prevent this type of paint failure and other effects of end grain moisture absorption, seal all edges of the plywood with paint or, better still, knife edges with white lead paste before painting.

STANDARD PERFORMANCE TESTS

One panel from each hot press load of Douglas Fir plywood is selected at random and subjected to a series of tests established by the Canadian Standards Association. A full account of procedure can be obtained by referring to C.S.A. Standard 0121-1953. The representative panels are submitted to a cold soaking test in which sections of each panel are submerged in water at room temperature for 48 hours, dried for eight hours at a temperature of 145 degrees Fahrenheit, soaked again for two cycles of sixteen hours separated by one more eight-hour drying period. At this point cold water shear test specimens are soaked once more for sixteen hours and then submitted to a shearing load of from 600/1000 pounds a minute until failure.

Other specimens are taken from the cold water soaking stage and boiled for four hours, dried for twenty hours, and boiled again for four hours, after which they are submitted to a shear test identical to the above.

The brand mark PMBC Exterior or PMBC Exterior Sheathing on the edge of a panel indicates that it has passed all tests satisfactorily.

STRENGTH AND RIGIDITY

Results of tests made by the U. S. Forest Products Laboratory, Madison, Wis., to determine the comparative strength and rigidity of frame walls, are shown below:

STRENGTH AND RIGIDITY OF FRAME WALLS WITH OPENINGS

Type of Construction	Relative Rigidity	Relative Strength
1" x 8" Diagonal Sheathing	1.0	1.3
1/4" Douglas Fir plywood nailed to frame	2.0	2.8
1/4" Douglas Fir plywood glued to frame	3.7	4.0



DEFLECTION



Plywood Thickness	Uniform Loading in Lbs. Per Sq. Ft. (16-inch Span)
5/16"	63
3/8"	76
1/2"	129
5/8"	197

INSULATING QUALITIES

The heat input, in accumulated minutes of heat, necessary to maintain the interior of the test houses at 71° F. for a period of 10 hours was measured in each house with results as follows:

	Construction Details	HEAT INPUT (Minutes of Heat)
TEST HOUSE A	$\frac{3}{4}$ " Shiplap lath and plaster	185
TEST HOUSE B	$\frac{3}{4}$ " Shiplap $\frac{1}{4}$ " Plywood interior	159
TEST HOUSE C	$\frac{5}{16}$ " Plywood sheathing $\frac{1}{4}$ " Plywood interior	129



ACOUSTICAL PROPERTIES

Walls of Douglas Fir plywood compare very favorably with other standard construction materials from the standpoint of sound insulation. In tests on various partition constructions conducted at the River Bank Laboratories in Geneva, Ill., by Dr. Sabine, the following values were recorded:

	Transmission Loss in Decibels
$\frac{1}{2}$ " Gypsum Plaster on Metal Lath 2" x 4" studs	33.2
$\frac{1}{2}$ " Plaster on Wood Lath 2" x 4" studs	33.4
$\frac{1}{4}$ " Douglas Fir Plywood on 2" x 4" studs	31.1



Seaboard Lumber Sales Company Limited representatives
are located at the following addresses

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Please contact your usual supplier of
plywood regarding the availability of
the products listed in this book.



The branded inscription on the end of each panel indicates that all Canadian Standard Tests for strength and waterproof glueline have been passed successfully.

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